

PUBLIC UTILITIES COMMISSION

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January 12, 2022

Christopher Foldesh, Asset Manager
California Flats Solar 150, LLC
8800 N. Gainey Center Dr., Ste. 250
Scottsdale, AZ 85282

SUBJECT: Audit of California Flats 150 Power Plant - Audit Number GA2021-13CF

Dear Mr. Foldesh:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Oge Enyinwa, Samuel Mandell, and Emiliano Solorio of ESRB staff conducted an electric solar generation audit of California Flats 150 Power Plant from November 1 through November 5, 2021.

During the audit, ESRB observed plant operations, inspected equipment, reviewed data, interviewed plant staff, and identified potential violations of General Order (GO) 167-B. A copy of the audit findings itemizing the violations is attached. Please advise me by email no later than February 9, 2022, by providing electronic copy of all corrective actions and preventive measures taken and/or planned to be taken to resolve the violations.

Your response should include a Corrective Action Plan with a description and completion date of each action and measure completed. For any violations not corrected by February 9, 2022, please provide the projected completion dates to correct the violations and to achieve full compliance with GO 167-B.

Please submit your response to Oge Enyinwa at Ogeonye.Enyinwa@cpuc.ca.gov. Please note that although California Flats 150 Power Plant has been given 30 days to respond, it has a continuing obligation to comply with all applicable GO 167-B requirements; therefore, the response period does not alter this continuing duty.

If you wish to make a claim of confidentiality covering any of the information in the report, you may submit a confidentiality request pursuant to Section 15.4 of GO 167-B, using the heading "General Order 167-B Confidentiality Claim". The request should be sent to Oge Enyinwa with a copy to me by February 9, 2022.

Thank you for your courtesy and cooperation throughout the audit process. If you have any questions concerning this audit, please contact Oge Enyinwa at Ogeonye.Enyinwa@cpuc.ca.gov or (415) 470-3504

Sincerely,

A handwritten signature in blue ink, appearing to read "Banu Acimis".

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch

Safety and Enforcement Division
California Public Utilities Commission

Attachment: Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
Nika Kjensli, Program Manager, ESRB, SED, CPUC
Rickey Tse, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
Nathan Sarina, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC
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Samuel Mandell, Utilities Engineer, ESRB, SED, CPUC
Emiliano Solorio, Utilities Engineer, ESRB, SED, CPUC



**GO 167-B Audit Report
of the
*California Flats 150
Power Plant***

Audit Number GA2021-13CF

Audit Date: November 1 - 5, 2021

**PREPARED BY:
ELECTRIC SAFETY AND RELIABILITY BRANCH
SAFETY AND ENFORCEMENT DIVISION**



Gavin C. Newsom, Governor

TABLE OF CONTENTS

| | |
|--|-----------|
| I. Introduction | 2 |
| II. Background | 2 |
| III. Conclusion | 3 |
| IV. Operation and Maintenance Findings Requiring Corrective Action | 4 |
| Finding 1: The Plant fails to maintain good housekeeping practices | 4 |
| Finding 2: The Plant lacks a work order timeline completion and root cause analysis program | 6 |
| Finding 3: The Plant has illegible signage and is missing required signs on main entry points and the fences around the array block sites | 7 |
| Finding 4: Missing “Confined Space” warning sign on the water tank | 8 |
| Finding 5: Missing hazardous materials warning signs on the door or entrance of its inflammable storage building | 9 |
| Finding 6: The Plant fails to retain labels on plant equipment Bookmark not defined. | Error! |
| Finding 7: The Plant lacks a Shelf-Life Assessment (SLA) Program | 8 |
| Finding 8: The absorbent material in the Spill Kit is all degraded and falling apart | 12 |
| Finding 9: The fire extinguisher is not at its designated pressure | 14 |
| Finding 10: A “Prohibited Items” sign is missing from all access gates | 15 |
| Finding 11: Unsecured conductors were found sagging to the ground | 16 |
| V. Observations Bookmark not defined. | Error! |
| VI. Documents Reviewed | 19 |

I. Introduction

Electric power generation and resource adequacy are vital for California's economic well-being and the safety of its residents. Therefore, the California Public Utilities Commission (CPUC) has established standards for electric power Generating Asset Owners (GAO) to conduct operation and maintenance activities and manage their logbooks. The CPUC codified these standards in General Order 167-B (GO 167-B) as compliance guidelines for jurisdictional GAOs. The Electric Safety and Reliability Branch (ESRB) enforces GO 167-B compliance through audits.

From October through December 2021, ESRB performed a GO 167-B compliance audit at California Flats 150 Power Plant (Plant), a solar power generator located in Parkfield, San Luis Obispo County, owned by Arevon Energy Incorporated (Arevon), and operated by NovaSource Power (NovaSource).

ESRB conducted the field inspection at the Plant from November 1 through 5, 2021. ESRB observed NovaSource's operation and maintenance activities during the field inspection, inspected the Plant's facilities, interviewed NovaSource staff, and reviewed additional documentation and data. After the field inspection, ESRB reviewed other documents and information gathered from the site visit. Based on this evaluation, ESRB identified a total of 11 findings regarding Arevon's compliance with GO 167-B.

II. Background

Description of the Plant's electric power generation

The Plant is a 200.96 direct current (DC) megawatts (MW) power plant with an alternating current (AC) power output of 150 MW. The Plant is set up on four blocks, namely Blocks: Five, Six, Seven, and Eight. These blocks comprise solar modules in arrays or rows, which sum up to 505,500 modules. These break down to approximately six per string or 30 per row. The modules are rated at 1500 volts of DC (VDC). The six modules on the strings are connected in parallel with an actual voltage output of 1000 VDC accounting for losses. The power output from these strings is fed into combiner boxes. The Plant is configured to have 50 strings per combiner box, making the total harness combiner boxes in the Plant 1,685. In addition, the Plant has 54 inverters and 54 medium voltage (MV) transformers. The output from the combiner boxes is fed to the inverters, which converts the 1000 VDC to a 600 VAC, then onto the MV transformer, which steps up the 600 V to 34.5 kV, where it is collected and sent to the substation. Please see Figure 1 for the layout of the CA Flats.

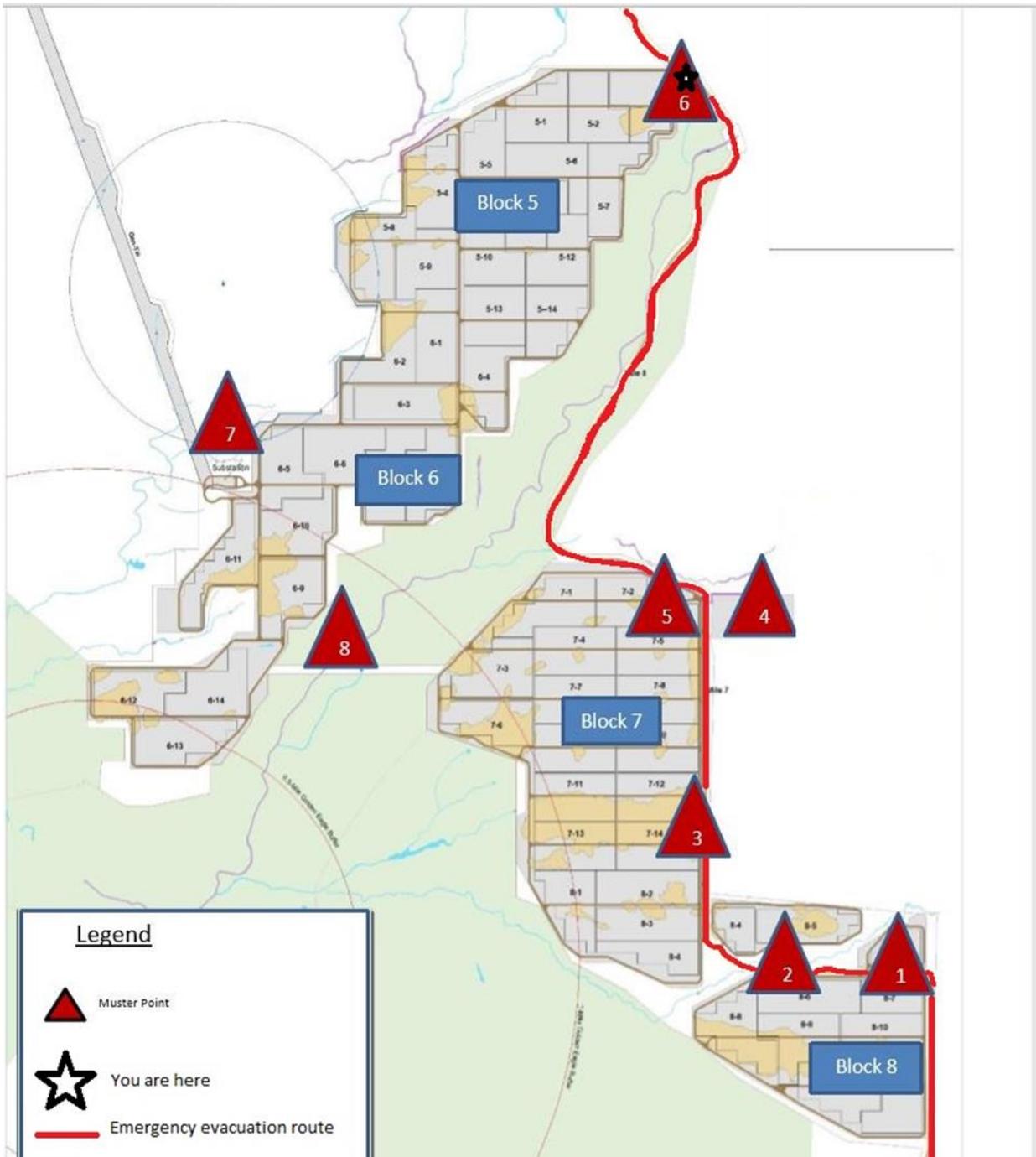


Figure 1: Showing the layout of the solar Plant

III. Conclusion

As a result of ESRB’s GO 167-B compliance audit, ESRB identified 11 findings listed in Section IV and one observation under Section V of the report. Findings are violations of applicable rules that can adversely affect the reliable operation and present safety hazards to plant personnel and the public.

Arevon must respond to the findings within 30 days of receipt of this report. The response should include a Corrective Action Plan (CAP) with a timeline for implementing the corrective actions and preventive measures taken and/or planned to resolve the violations and prevent similar deficiencies in the future.

IV. Operation and Maintenance Findings Requiring Corrective Action

Finding 1: The Plant fails to maintain good housekeeping practices:

GO 167-B, Appendix E, Operation Standard (OS) 1 – Safety states in part:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority.”

GO 167-B, Appendix E, OS 4: Problem Resolution and Continuing Improvement states:

“The GAO values and fosters an environment of continuous improvement and timely and effective problem resolution.”

GO 167-B, Appendix E, OS 8 - Plant Status and Configuration states:

“Station activities are effectively managed, so plant status and configuration are maintained to support safe, reliable, and efficient operation.”

ESRB observed the following housekeeping issues at the Plant:

- The Plant has systematic issues in removing materials used for buffer zones for ecological purposes, posing a tripping hazard around the solar rows.
- There were tripping hazards that included construction materials left lying around walkways and the general area of the array sites.
- Improper storage in the server room, the warehouse, and the electric room in the substation.
- ESRB also noticed that the Tracker Control Cabinet latches were left unsecured.



Figure 2: Showing an array site with ecological buffers and construction materials



Figure 3: Showing an open latch at one of the Tracker Control Cabinets

Finding 2: The Plant lacks a work order timeline completion and root cause analysis program:

GO 167-B, Appendix E, OS 4: Problem Resolution and Continuing Improvement states:

“The GAO values and fosters an environment of continuous improvement and timely and effective problem resolution.”

While the Plant does have a Work Order prioritization system in place, it lacks a work order completion timeline program that ensures that open work orders are completed within a set time based on their prioritization level. This is achieved using a strategy that includes methods to anticipate, prevent, identify, and promptly resolve any deficiencies identified such as equipment performance problems and degradation. Furthermore, there is no root cause analysis program for problem-solving and identification of preventive actions from lessons learned.

Finding 3: The Plant has illegible signage and is missing required signs on main entry points and the fences around the array block sites.

GO 167-B, Appendix E, OS 1 – Safety states in part:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority.”

National Fire Protection Association (NFPA) 704: 4.3 Location of Signs states:

“Signs shall be in locations approved by the authority having jurisdiction and as a minimum shall be posted at the following locations:

- 1) Two exterior walls or enclosures containing a means of access to a building or facility.*
- 2) Each access to a room or area.*
- 3) Each principal means of access to an exterior storage area.”*

ESRB observed that many High Voltage (HV)/Danger signs on the fences, inverters, and field transformers are missing, illegible, or faded. Due to the size of the Plant and the limited number of NovaSource employees on-site, safety warning signs are vital to alert the public of the danger of high voltage facilities such as solar panels, combiner boxes, trackers, inverters, field transformers, cables, and overhead transmission lines. Therefore, the Plant must replace all illegible HV/Danger signs with legible signs and post proper signage at locations where they are missing.



Figure 4: Showing a section of the fence at a Block site without any signage

Finding 4: Missing “Confined Space” warning sign on the water tank.

GO 167-B, Appendix E, OS 1: Safety states:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures.”

Occupational Safety and Health Administration Standard 1910.146(c)(2): permit-required confined spaces states:

“If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces.”

ESRB observed that the water tank at the CA Flats does not have a “Confined Space” warning sign on the exterior wall. This is a safety concern, and CA Flats must install at least one “Confined Space” warning sign at the outer wall of the water tank. In addition, the sign should be mounted on a visible side of the water tank.



Figure 5: Showing a water storage tank without any confinement warning sign

Finding 5: CA Flats is missing hazardous materials warning signs on the door or entrance of its flammable storage building.

GO 167-B, Appendix E, OS 1: Safety states:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures.”

GO 167-B Appendix E, OS 4: Problem Resolution and Continuing Improvement states:

“The GAO values and fosters an environment of continuous improvement and timely and effective problem resolution.”

CA Flats uses various hazardous materials as part of its regular operation including gasoline, and battery electrolytes. However, ESRB observed that there was no Hazardous Materials (HAZMAT) warning sign:

The NFPA establishes industry consensus standards for fire protection. NFPA 704¹ is the standard system for identifying hazardous materials for an emergency. Posting an NFPA placard is a standard industry practice to alert first responders, plant employees, and the public of the risks posed by a facility’s hazardous materials. This helps emergency workers determine what safety precautions and equipment to use and how best to respond to different scenarios. For example, CA Flats must install HAZMAT warning signs on its inflammable storage building entrance.



Figure 6: Showing the entrance into the inflammable storage building

Finding 6: The Plant fails to retain labels on plant equipment:

GO 167-B, Appendix E, OS 3: Operations Management and Leadership states in part:

¹ NFPA 704 is a widely used standardized system for identifying materials hazards for emergency response. It identifies a material’s health, flammability, and chemical reactivity hazards.

“D. Monitoring and Assessing

Operations management effectively monitors and assesses the performance of operations activities in the following areas:

12. Equipment Performance and Material Condition”

Many fiber optic pull cabinets and PVCs on the plant site have faded or peeled-off labels.



Figure 7: Showing a fiber pull cabinet with peeled-off equipment label

Finding 7: The Plant lacks a Shelf-Life Assessment (SLA) Program.

GO 167-B, Appendix D, Maintenance Standard (MS) 12: Spare Parts, Material, and Services states in part:

“Storage of parts and materials support maintaining quality and shelf life of parts and materials.”

GO 167-B, Appendix E, OS 17: Records of Operation states in part:

“D. Retained records include documents such as:

3. Records related to environmental monitoring, investigation, regulatory reports, transport and disposal of materials.”

ESRB found expired chemicals such as eyewash in the Plant’s warehouse. Therefore, the Plant must establish an SLA Program that includes spare parts and other materials and chemicals. This should consist of when parts are obtained, manufactured, and their expected shelf life. Additionally, the SLA should include the items’ location and a scheme for disposal or recycling.

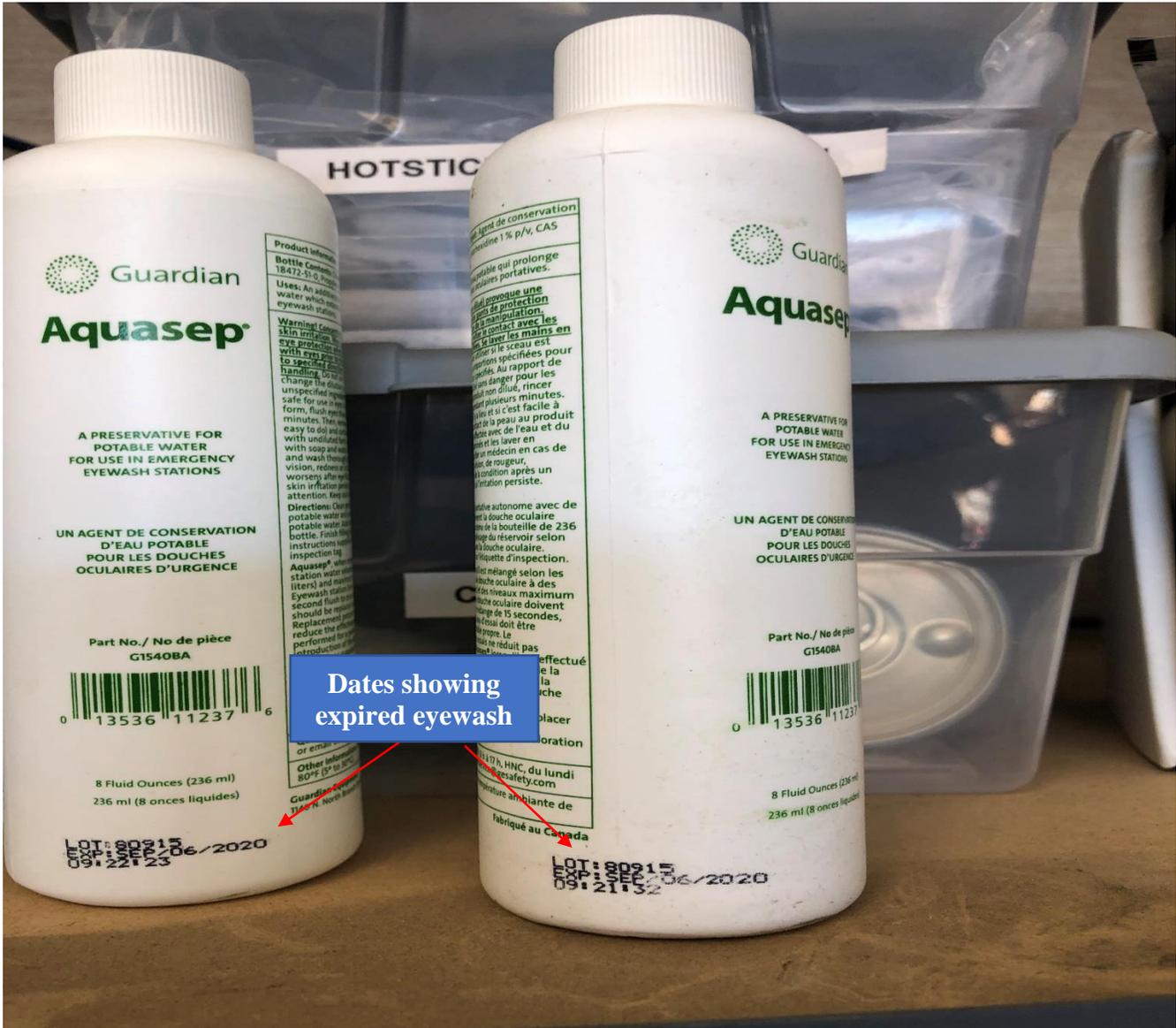


Figure 8: Showing expired eyewashes located in the warehouse

Finding 8: The absorbent material in the Spill Kit is all degraded and falling apart.

GO 167-B, Appendix D, MS 12: Spare Parts, Material, and Services states in part:

“Storage of parts and materials support maintaining quality and shelf life of parts and materials.”

GO 167-B, Appendix E, OS 3: Operations Management and Leadership states in part:

D. Monitoring and Assessing

Operations management effectively monitors and assesses the performance of operations activities in the following areas:

12. Equipment Performance and Material Condition”

GO 167-B, Appendix E, OS 10: Environmental Regulatory Requirements states: *“Environmental regulatory compliance is paramount in the operation of the generating asset. Each regulatory event is identified, reported and appropriate action taken to prevent recurrence.”*

40 CFR 112 Appendix F, Section 1.8.1.2 Response Equipment Inspection states in part:

“Describe each type of response equipment, checking for the following:

Response Equipment Checklist

- 1. Inventory (item and quantity);*
- 2. Operational status/condition;*
- 3. Actual use/testing (last test date and frequency of testing); and*
- 4. Shelf life (present age, expected replacement date).”*

ESRB observed that the absorbent material in the Spill Kit is all degraded and falling apart, making them unusable when needed.



Figure 9: Degraded spill kit material in its storage location

Finding 9: The fire extinguisher is not at its designated pressure.

GO 167-B, Appendix E, OS 1: Safety states:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures.”

GO 167-B, Appendix E, OS 3: Operations Management and Leadership states in part:

“D. Monitoring and Assessing

Operations management effectively monitors and assesses the performance of operations activities in the following areas:

12. Equipment Performance and Material Condition”

GO 167-B, Appendix D, MS 1: Safety states:

“The protection of life and limb for the work force is paramount. The company behavior ensures that individuals at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of individuals are consistent with the policies and procedures.”

ESRB observed a fire extinguisher outside its designated pressure range by the office entrance.



Figure 10: Over-pressurized fire extinguisher

Finding 10: A “Prohibited Items” sign is missing from all access gates.

GO 167-B, Appendix E, OS 1: Safety states in part:

“B. Managers in the organization contribute to the safety culture of the work environment through:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures.”

ESRB observed instances at the array sites where conductors were left unsecured and lying on the ground. This constitutes tripping hazard because they are electrical conductors that can be hazardous to the Plant employees; therefore, they should be properly secured to ensure safety and prevent service interruptions.



Figure 12: Showing conductors at a row in the solar array at the Plant

V. Observations

GO 167-B, Appendix E, OS 1 – Safety states in part:

“The protection of life and limb for the workforce is paramount. GAOs have a comprehensive safety program in place at each site. The company behavior ensures that personnel at all levels of the organization consider safety as the overriding priority.”

GO 167-B, Appendix E, OS 8 - Plant Status and Configuration states:

“Station activities are effectively managed, so plant status and configuration are maintained to support safe, reliable, and efficient operation.”

The Plant should remove the rock obstruction hindering the opening of the doors of the fire pump house, which could cause a delay and problematic accessibility in the event of a fire emergency.



Figure 13: Showing the Plant’s fire pump house

VI. Documents Reviewed

| Reference # | Documents Reviewed |
|-------------|--|
| 1 | Orientation Program for Visitors and Contractors |
| 2 | Evacuation Procedure |
| 3 | Evacuation Map and Plant Layout |
| 4 | Evacuation Drill Report & Critique (last 3 years) |
| 5 | Hazmat Handling Procedure |
| 6 | Safety Data Sheet (SDS) for All Hazardous Chemicals |
| 7 | Injury & Illness Prevention Plan (IIPP) (last 3 years) |
| 8 | OSHA Form 300 (Injury Log) in last 3 years |
| 9 | Fire Sprinklers Test Report (last 3 years) |
| 10 | Insurance Report / Loss Prevention / Risk Survey (last 3 years) |
| 11 | Lockout / Tagout Procedure (last 3 revisions, if applicable) |
| 12 | Arc Flash Analysis |
| 13 | Confined Space Entry Procedure |
| 14 | Plant Physical Security and Cyber Security Procedures and Records |
| 15 | Fire Protection System Inspection Record |
| 16 | Conduct of Training Procedures |
| 17 | List of Training Programs and Descriptions |
| 18 | Onboarding Procedure and Records |
| 19 | Safety Training Records |
| 20 | Skill-related Training Records |
| 21 | Hazmat Training and Record |
| 22 | 2020 List of site-specific Qualified Contractors |
| 23 | Contractor Selection/Qualification/Procurement/Monitoring Procedure |
| 24 | Contractor Safety Data Sheets |
| 25 | Contractor Safety Program Procedure and Training Records |
| 26 | Spill Prevention Control and Countermeasures Plan (SPCC) |
| 27 | Spill Prevention and Response Plan (SPRP) |
| 28 | Storm Water Pollution Prevention Plan (SWPPP) |
| 30 | Daily Round Sheets / Checklists |
| 31 | List of Closed/Completed Work Orders (last four Quarters) * |
| 32 | List of Open/Backlogged Work Orders* |
| 33 | Work Order Management Procedure (last three revisions, if applicable) |
| 34 | Conduct of CMMS |
| 35 | Conduct of Maintenance Procedures |
| 36 | Site Operating Plan/Procedures |
| 37 | Maintenance and Inspection Records for Solar Inverters |
| 38 | Maintenance and Inspection Records for Solar Trackers |
| 39 | Maintenance and Inspection Records for Solar Arrays/Collectors/Solar Field |

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| 40 | Maintenance and Inspection Records for Mounting System |
| 41 | Maintenance and Inspection Records for Electrical System |
| 42 | Maintenance and Inspection Records for Switchgear/breaker/relays |
| 43 | Maintenance and Inspection Records for Main Transformer(s) |
| 44 | Maintenance and Inspection Records for Switchyard & Transmission Equipment |
| 45 | Solar Panel Array Layout and one-line electric interconnection diagram |
| 46 | Solar Farm Equipment Design Data |
| 47 | Procedure Compliance Policy |
| 48 | Spare Parts Inventory List |
| 49 | Shelf-life Assessment Report |
| 50 | Employee Performance Review Procedures and Verifications |
| 51 | Organizational Chart |
| 52 | Job Titles and Job Descriptions (of Plant Staff) |
| 53 | Instrument Calibration Procedures and Records |
| 54 | Measuring & Testing Equipment List |
| 55 | Test Equipment Calibration Procedures and Records |
| 56 | Internal Audit Procedures and Reports |